DOCUMENT RESUME

ED 415 741 HE 030 885

AUTHOR	Creech, Joseph D.
TITLE	Better Preparation, Less Remediation. Challenging Courses Make a Difference. Goals for Education: Educational Benchmarks, 1997.
INSTITUTION	Southern Regional Education Board, Atlanta, GA.
PUB DATE	1997-00-00
NOTE	13p.
AVAILABLE FROM	Southern Regional Education Board, 592 Tenth St, N.W., Atlanta, GA 30318-5790; phone: 404-875-9211.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Achievement; *Academic Standards; *College Bound Students; *College Entrance Examinations; *College Preparation; College School Cooperation; Developmental Studies Programs; *Difficulty Level; High Schools; Higher Education; *Remedial Instruction

ABSTRACT

This report examines the need for and status of remedial education at colleges in the 15 member states of the Southern Regional Education Board (SREB). It notes that too many (one of every three) entering college students currently take at least one remedial course and suggests that this number could be reduced if high school students planning to attend college would take more challenging academic courses to prepare for college admissions tests and college achievement. Narrative and tables present comparative state data on: high school courses required for graduation; required or recommended college preparatory courses; relationship between taking a standard college admission test--Scholastic Assessment Test (SAT) and American College Testing (ACT) program and completion of a college preparatory curriculum; effects of taking more academic core courses on SAT and ACT scores; numbers of entering college students who take remedial courses; reasons students take remedial courses; some promising initiatives in Maryland, North Carolina, Arkansas, Georgia, Mississippi, and Oklahoma; and recommendations for improving college readiness. States are urged to review the content and rigor of their high school graduation requirements and college preparatory programs and utilize college-school reporting systems to identify ways to help students prepare for and succeed in college. (DB)

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Better Preparation, Less Remediation

Challenging Courses Make a Difference

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Southern Regional Education Board

GOALS FOR EDUCATION

BY THE YEAR 2000—

Four of every five students entering college will be ready to begin college-level work.

SREB Goals for Education
Commission for Educational Quality, 1988

In most SREB states more than one of five entering students at four-year colleges and almost one of two at two-year colleges will need at least one remedial course. Why? Information from several states shows that most students in remedial education (especially at community colleges) are adults in their twenties who have been out of high school for years and need refresher courses in writing or mathematics. A smaller group (but still a group that is too large) taking remedial courses is recent high school graduates who did not take a college preparatory curriculum, avoided a college-preparatory mathematics course in their senior year, completed a college preparatory curriculum with low grades, or completed a weak college preparatory curriculum.

Better Preparation, Less Remediation makes two things clear: (1) if states increase the percentage of students who meet high standards in a challenging core of academic courses, and take a college-preparatory mathematics course their senior year, fewer recent high school graduates will need remedial help in college; (2) some college remedial programs will be needed, especially in mathematics and writing for those adults who do not enter, or complete college directly after high school and come to a community college years later to begin or continue a college program.

Mark Musick, President
Southern Regional Education Board

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Better Preparation, Less Remediation
Challenging Courses Make a Difference

- Too many recent high school graduates are taking remedial courses as college freshmen.
- Average ACT and SAT scores in the SREB states are below the national average.
- College graduation rates do not meet expectations.

These are important issues about how well students are being prepared for college. To respond to these issues we need to ask:

- How many entering college students are taking remedial courses?
- What actions have states taken to improve the connection between what is expected of students in high school and what students are expected to know and do when they enter college?
- What does the most recent information tell us about these issues and progress being made to better prepare students to continue their education after high school?

Here is what we know.

- About one of every three entering college students takes at least one remedial course in mathematics, writing, or reading.
- In every SREB state and nationally, college admissions test scores are higher for high school seniors who complete a core college preparatory program than for those who do not.
- Achievement scores are higher for high school seniors in SREB's *High Schools That Work* who complete challenging academic and vocational courses than for those who do not.
- Fewer students need remedial work when they enter college if they complete academic core courses in high school.

What courses are students expected to take in high school?

SREB states have established minimum numbers of courses (or units) that students must complete to meet high school graduation requirements. In the early 1980s, the number of credits required for graduation was 18 or 19 in most SREB states. Now 20 to 24 courses are required and typically include four English, three mathematics, two or three social studies and two or three science units. The total number of courses required in the academic core range from 11 to 16. Students choose electives to complete the total number of units required. (See Table 1). In most states, local schools or districts can establish higher, but not lower, graduation requirements.

This report was prepared by Joseph D. Creech, *SREB Director for Educational Policies.*

Table 1
Courses in Core Subjects Required for High School Graduation

	All Courses	Core Subjects				
		Total	English	Social Studies	Mathematics	Sciences
Alabama *	22	16	4	4	4	4
Arkansas	21	13	4	3	3	3
Florida	22	13	4	3	3	3
Georgia	21	13	4	3	3	3
Kentucky	20	11	4	2	3	2
Louisiana	23	13	4	3	3	3
Maryland	21	13	4	3	3	3
Mississippi	20	11	4	2	3	2
North Carolina	22	12	4	2	3	3
Oklahoma *	20	11	4	2	3	2
South Carolina *	24	14	4	3	4	2
Tennessee	22	11	4	1	3	3
Texas	21	12	4	3	3	2
Virginia	21	12	4	3	– 5 Combined –	
West Virginia	21	11	4	3	2	2

* Alabama effective with 1996-97 high school freshmen. Oklahoma and South Carolina effective with 1997-98 high school freshmen.

Sources: SREB Survey of State Education Agencies, SREB States, 1997.

What courses do colleges and universities expect students to complete?

When asked what are the most important factors in considering applicants and the best indicators of success in college, admissions officers invariably state that challenging courses in high school and the grades students make on those courses have the most influence. Since the mid-1980s, statewide and individual college and university policies on minimum admissions requirements have become more specific about the courses students should complete in high school to be minimally prepared. Public four-year colleges and universities in the SREB states require or recommend that students complete at least 13 courses in the academic core, two years of a foreign language and three to five additional electives in college preparatory courses. (See Table 2).

Table 2
College Preparatory Courses Required or Recommended for Admission

	English	Mathematics (Algebra 1 or Higher)	Social Studies	Science	Foreign Language	Computer Studies
National Commission on Educational Excellence *	4	3	3	3	2	0.5
Alabama **	4	3	4	3	2	
Arkansas **	4	3	3	2	2	
Florida ***	4	3	3	3	2	
Georgia	4	3	3	3	2	
Kentucky	4	3	2	2	—	
Louisiana **	4	3	3	3	2	
Maryland	4	3	3	2	2	
Mississippi	4	3	3	3	2	0.5
North Carolina	4	3	2	3	2 **	
Oklahoma	4	3	2	2	2 **	
South Carolina	4	3	3	2	2	
Tennessee	4	3	2	2	2	
Texas **	4	3	3	3	2	
Virginia **	4	3	3	3	3	
West Virginia	4	3	3	2	2 **	

* The National Commission on Educational Excellence recommended in 1983 that students who wish to continue their education after high school complete a program of study consisting of the following: four years of English, three years of mathematics (Algebra 1 and higher level courses), three years of science, three years of social studies, two years of foreign language and one-half year of computer studies.

** Number of credits indicated are strongly and explicitly recommended but not required.

*** Four additional academic electives approved by the Department of Education.

Source: SREB Benchmarks survey of state higher education agencies, 1996.

On the surface, it appears that the core courses required by the colleges and those required for graduation from high school are similar. But not all courses in English, mathematics, social studies, and science required to graduate from high school are challenging enough to prepare students for college. For example, the highest level mathematics course required for high school graduation is Algebra I or its equivalent, but colleges and universities expect students to complete at least Algebra I and two additional higher level mathematics courses in high school.

High schools, colleges raise standards for students

More students are taking college admissions tests (ACT and SAT) and more high school students are completing a college preparatory core curriculum — four units in English, and three each in mathematics (Algebra I and higher), sciences and social studies. Average scores on both the ACT and the SAT are the same as or slightly higher than 10 years ago in most SREB states. Increases in the percentage of high school seniors taking these tests typically result in a lower state average because students with a wider range of abilities and backgrounds are taking the tests. But SREB state averages have run counter to this trend. One reason may be that more high school seniors have completed the kinds of courses that prepare them for such tests.

Ten years ago, less than half of the high school seniors who took the ACT in Alabama, Arkansas, Kentucky, Mississippi, Oklahoma, Tennessee and West Virginia had completed a college preparatory core curriculum. This year, only one of those states (West Virginia) has less than 50 percent completing the core. (See Table 3). In Louisiana, the percentage taking the core curriculum increased from 61 to 66 percent over the same period.

More than half of the high school seniors who took the SAT in Florida, Maryland, North Carolina, Texas and Virginia completed 18 or more courses in English, mathematics, social studies, sciences, foreign languages and the arts in 1997. That was true in only three of these SREB states (Florida, Maryland and Virginia) 10 years ago. (See Table 4).

Table 3
What Percentage of Students Who Take the ACT Complete a Core College Preparatory Curriculum?[1]

	1987	1997
United States	41%	59%
Alabama	43%	63%
Arkansas	36%	73%
Kentucky	34%	37%
Louisiana	61%	66%
Mississippi	49%	61%
Oklahoma	39%	51%
Tennessee	27%	54%
West Virginia	43%	43%

[1] English 4, mathematics 3, social sciences 3, natural sciences 3.

States are those where 50 percent or more of high school seniors take the ACT.

Source: American College Testing.

Table 4
What Percentage of Students Who Take the SAT Complete 18 or More Courses in Six Academic Subjects?[1]

	1987	1997
United States	49%	55%
Florida	59%	56%
Georgia	37%	43%
Maryland	56%	61%
North Carolina	41%	52%
South Carolina	40%	44%
Texas	35%	52%
Virginia	53%	60%

[1] English, mathematics, social studies, natural sciences, foreign languages and arts.

States are those where 50 percent or more of high school seniors take the SAT.

Source: The College Board.

Challenging courses make a difference?

■ **ACT and SAT scores increase in states where more students take the academic core**

The SREB states that had the most increases in average scores on college admissions also had increases in the percentage of students completing a core of academic courses. Arkansas and Oklahoma have the largest increases in average ACT scores among the SREB states where the ACT is the dominant college admissions tests. (See Table 5). The percentage of high school seniors who took the tests and completed the academic core doubled in Arkansas to 73 percent and increased to 51 percent in Oklahoma.

Among the SREB states where the SAT is the dominant admissions test, Georgia, North Carolina, South Carolina and Texas show the greatest gains in average SAT scores over the past decade. (See Table 6). In these states the number of college-bound high school seniors who completed 18 or more courses in the academic core increased twice as fast as the total number taking the SAT.

The benefits of taking more challenging courses are apparent when comparing scores of students who complete the core or more with those who do not. Nationally, the average score for students who complete the core courses is about 22 on the ACT. Almost 75 percent of those who do not complete the core score below this average. Average SAT scores for students who completed 16 academic courses was 15 points higher than for those who completed only 15 courses. High school seniors who completed 18 academic courses scored 38 points higher than those who completed only 17 courses.

Table 5
Average Composite ACT Scores for Selected SREB States*

	1988	1997
United States	20.8	21.0
Alabama	20.2	20.2
Arkansas	20.0	20.3
Kentucky	20.3	20.1
Louisiana	19.5	19.4
Mississippi	18.7	18.7
Oklahoma	20.1	20.6
Tennessee	20.2	19.7
West Virginia	19.8	20.0

* States where 50 percent or more of high school seniors take the ACT.

Source: American College Testing

Table 6
Average Combined SAT Scores for Selected SREB States*

	1987	1997
United States	1008	1016
Florida	998	998
Georgia	948	967
Maryland	1015	1014
North Carolina	945	978
South Carolina	940	953
Texas	979	995
Virginia	1010	1003

* States where 50 percent or more of high school seniors take the SAT.

Source: The College Board

■ **Fewer students who take the core need remedial courses in college**

Fewer students who complete courses in the academic core need remedial work when they enter college according to studies in SREB states. In Georgia, four of five recent high school graduates who did not complete a core of college preparatory courses had to take at least one remedial course when they entered college. Only one of five students who completed a college preparatory program needed a remedial course. Maryland's Higher Education Commission reports that less than 10 percent of Maryland high school graduates who completed a college preparatory program and entered public four-year colleges needed a remedial course. The rate was about twice as high for those who did not complete a college preparatory program. The University of North Carolina found 60 percent of students in remedial mathematics did not take mathematics course in their senior year of high school.

Since implementing policies that require and encourage students to complete a more challenging college preparatory program, Arkansas, North Carolina and Oklahoma report declines in the percentage of high school graduates who need remedial courses at public four-year colleges. By clearly communicating what is necessary to succeed in college-level courses to high schools, students and parents, colleges and universities play an important role in improving student achievement.

How many entering college students take remedial courses?

Too many. Here is what higher education agencies told us about the extent of remedial work on college campuses. Keep in mind that in most SREB states each college or university determines how students are assigned to remedial courses. Only a few states have selected an assessment procedure to be used by all public colleges and have established a minimum which students at all institutions must meet to take college-level courses.

About two-thirds of all remedial courses are offered in two-year community and technical colleges. There is no SREB state where the percentage of students entering public two-year colleges who take a remedial mathematics course is less than 25 percent. (See Chart 1). More than half of entering two-year college students in Arkansas, Georgia, Kentucky, Louisiana and Tennessee take at least one remedial course.

At four-year colleges and universities the percent taking a remedial mathematics course ranges from four percent to 43 percent. (See Chart 2). State policies influence these numbers. In about half the SREB states (Florida, Maryland, North Carolina, South Carolina, Texas and Virginia), less than 20 percent of entering freshmen take one or more remedial courses in mathematics, writing, or reading. In Florida and South Carolina, for example, four-year colleges contract with community or technical colleges to provide remedial instruction. The rates in these states are also influenced by admissions policies of the four-year colleges, especially at those institutions where the competition for spaces in the freshman class is intense.

In Arkansas, Georgia, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee and West Virginia the percentage taking remedial courses at four-year colleges is higher for a

Chart 1

Percent Taking Remedial Mathematics Courses at Two-Year Colleges

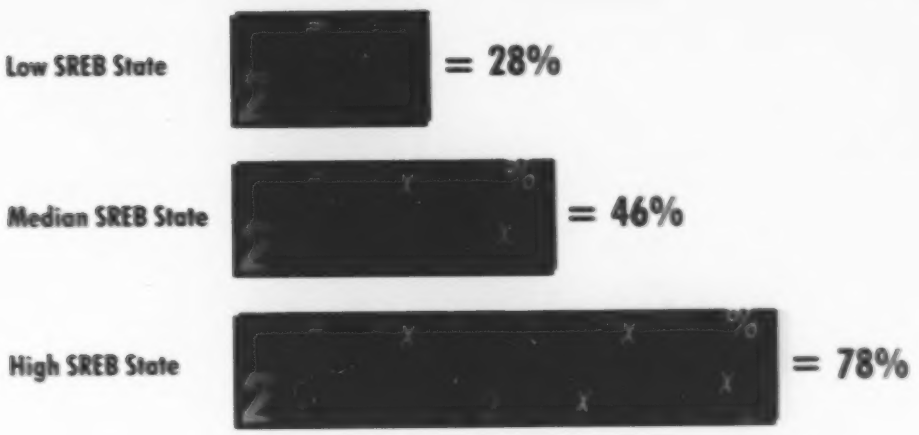
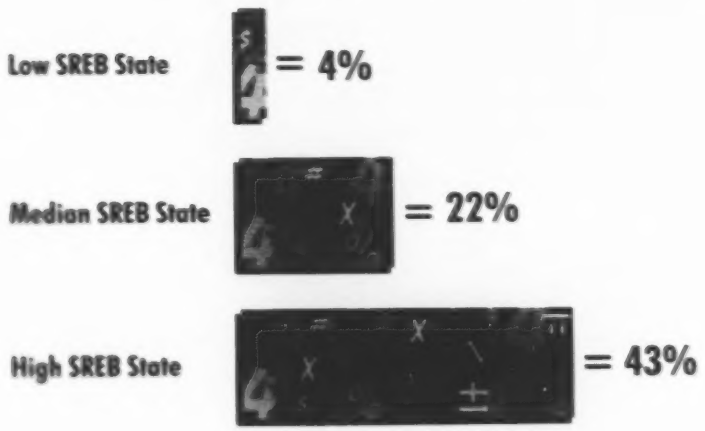


Chart 2

Percent Taking Remedial Mathematics Courses at Four-Year Colleges



variety of reasons. Arkansas, Georgia, Mississippi, Oklahoma and Tennessee have established common assessment procedures used by all institutions. For example, any student entering a college or university in Arkansas who scores below 19 on the ACT mathematics test must take remedial mathematics.

Many of the four-year colleges in these states have a tradition of admissions policies that are relatively "open door" — any high school graduate is admitted. Alabama does not collect statewide information on the percent taking remedial courses.

Who takes remedial courses and why?

Generally, there are two groups: recent high school graduates and young adults who have been out of school for one or more years. Policies that address the "remedial problem" must consider the impact on these two very different groups.

Recent high school graduates taking remedial courses as noted earlier include those who did not complete a rigorous college preparatory curriculum, who completed a college preparatory curriculum with low grades or those who did not take mathematics in their senior year of high school. Adults enrolling in a two-year or four-year school after graduating from high school one or more years earlier may need refresher courses and they may need to acquire skills they did not get while in high school.

Tennessee has good information about the size of the "remedial problem" for these two groups of students. Almost half of those who take remedial courses at public four-year colleges in Tennessee are adults returning to school after an absence of one or more years. At the public two-year colleges, two-thirds of those taking remedial courses are returning adults.

But what about those recent high school graduates? In Tennessee, for example, more than one of four recent high school graduates attending public four-year colleges takes at least one remedial course. That seems like a high percentage — and it is. Why is that rate so high — especially since more high school graduates are taking more challenging courses? A state such as Tennessee has set one standard that all students must meet to avoid remedial courses.

There are several other reasons. While the information cited earlier from American College Testing and The College Board shows increases in the number of students completing the core courses, the percentages taking a minimal college preparatory program remain at less than 75 percent of those planning to attend college. Further, the quality of college preparatory courses varies from school to school and not all students who take those courses do well. A national study of high school transcripts provides more evidence that too few high school graduates have completed a program of study that prepares them well for college.

Typically in SREB states, of every 100 high school graduates:

- 54 take an academic core of courses — 4 English and 3 each in mathematics, science and social studies. These are not necessarily college preparatory level courses.
- 38 take a minimum college-preparatory curriculum — the academic core plus two years of a foreign language
- 25 take four years of college preparatory mathematics in high school

But 57 of 100 attend a two or four-year college within 12 months of graduating from high school.

When more high school graduates are attending college than took a minimum college preparatory curriculum, it is no surprise that more than one of four needs a remedial course. If only half of those who attend college take a solid mathematics course in their senior year of high school, it is no surprise that more than one of three need remedial mathematics.

What are promising initiatives in SREB states?

All SREB states have initiatives to improve the high school curriculum and raise graduation requirements. The **Maryland** Higher Education Commission's **Student Outcomes and Achievement Report** provides information to high schools on the performance of their graduates at Maryland's public colleges. The report shows how many enroll, how many are required to take remedial courses and what grades they make on freshman courses in English and mathematics. Other SREB states have similar college-to-school reporting systems. But college to school reporting information is underutilized by both schools and colleges. These reporting systems produce a wealth of information that can be used by high school and college faculties as a basis for improving the connections between high school and college courses. Increased participation in the Advanced Placement Program also spurs college and school faculty to work together to improve college preparatory programs.

Since the **University of North Carolina** Board of Governors specified a college preparatory program that all high school students must meet to be considered for admission to its 16 institutions, the percentage of freshmen enrolled in remedial courses has dropped. Reports show that fall enrollment in remedial courses dropped from almost 6,700 in 1986 to 4,600 in 1996. Expenditures on remedial courses dropped from $3.3 million to just over $2 million during that period.

There has been a dramatic increase in the number of high school graduates who took the academic core courses since **Arkansas** created its **Academic Challenge Scholarship** program in 1991. Students who complete the college preparatory program in high school with a "C" average receive a scholarship for tuition and fees at Arkansas' public colleges and universities. Also, the percentage of those high school graduates entering Arkansas' colleges and universities who needed one or more remedial courses dropped from more than 60 percent to less than 50 percent since 1991.

Georgia has moved the merit-based scholarship to a new level with its nationally-recognized program. The **Georgia Hope Scholarship** is motivating more Georgia high school students to take college preparatory courses and to earn a "B" average in these courses. Graduates of Georgia high schools, who have earned a "B" average, can attend any state institution of higher learning without having to pay tuition and fees. Studies of Hope Scholarship recipients show that those who completed a college preparatory program in high school are more likely to make better grades in their freshman year in college, return to college as sophomores and retain their scholarship. **Georgia's Postsecondary Readiness Enrichment Program** is a cooperative effort between the University System of Georgia, the Georgia Department of Education, and the Georgia Department of Technical and Adult Education to help at-risk students get better prepared. It provides students academic readiness skills, tutoring, instruction in technology, and other services that help them complete a challenging academic program. It targets students in middle schools and high schools.

Mississippi's senior colleges and universities have established **a summer developmental program** for students who do not meet admissions requirements. An outgrowth of the Ayers higher education desegregation case, the nine-week program aims to better prepare those students for college-level work. The Mississippi Legislature provided about $1.6 million to spend on computers, faculty, and other instructional needs

in the first year of the statewide program. The program served over 200 students in 1996 and more than 300 in 1997. More than 90 percent of the students who completed the program in 1996 successfully completed their first year in college. This is a good sign but the program is new and the numbers are small.

The **Oklahoma State Regents for Higher Education** implemented the **Educational Planning and Assessment System** to assess eighth and tenth graders on how well they are prepared for college and careers. It provides students, parents, teachers, counselors and administrators with results that can be used to plan and adjust programs of study, create more student and parent awareness of what is needed to succeed in college and careers and improve performance. The Regents also raised performance admissions requirements, communicated specific knowledge and skills students are expected to acquire through the high school core curriculum, offered rewards for academic achievement, and worked with the State Office of Accountability's Educational Indicators Program to make the college to school reporting system more effective.

What actions are likely to improve college readiness?

Better preparation in high school leads to better performance in college and the workplace. Results from state initiatives to improve preparation for college support this belief. A comprehensive program will:

- examine the content and rigor of high school graduation requirements and college preparatory programs
- establish performance standards for students and communicate expectations to students, parents and the public
- develop information on who is taking and who is successful in remedial courses
- provide reports from colleges to high schools on the performance of high school graduates in remedial and entry-level college courses
- use information from college to school reporting systems to bring college and school faculties together to work on specific ways they can help students prepare for and succeed in college
- offer scholarships to students for academic achievement on a challenging curriculum
- support efforts that encourage higher education and public schools to work together to improve the quality of teaching, programs of study and guidance.

Simply requiring students to complete a rigorous curriculum in high school will not guarantee better performance on college admissions tests, success in college or the workplace, or a reduction in the need for remedial courses in college. Other factors also influence student achievement — the quality and rigor of the courses, how well the courses are taught, the performance standards to which students are held, how much students are motivated, encouragement from parents and experiences outside of school.

One point is clear — not taking challenging courses limits options for further education and for employment after high school. Taking challenging courses expands the options.